REMARKS

Applicants intend this response to be a complete response to the Examiner's **20 July 2006** Final Office Action. Applicants have numbered the paragraphs in their response to correspond to the paragraph numbering in the Office Action for the convenience of the Examiner. Please note that related paragraphs are combined in paragraph number ranges, *e.g.*, 2-3.

DETAILED ACTION

The Request for Continued Examination filed November 15, 2006 has been approved. Further, the Amendment filed November 15, 2006 has been November 15, 2006. According to the Amendment, claims 1, 2, and 25 have been amended; and claims 3-7, 11-13, and 17-24 have been canceled.

It is noted that claim 15 has been mislabeled "currently presented." This label should be changed to "previously presented."

Currently, claims 1, 2, 8-10, 14-16, and 25-27 are pending in the application. Acknowledgment has been made.

Applicant acknowledges the claim status.

Claim Objections

Claims 1, 2, and 25 are objected to because of the following informalities:

In claim 1, line 4, the comma (,) should be replaced by a semicolon (;).

In claim 1, line 5, a semicolon (;) should be inserted after the phrase "simulating an artificial pulse discernible by touch".

In claim 1, line 6, a comma should be inserted after the phrase "to be heard through a stethoscope".

In claim 1, line 7, the word "where" should be changed to "wherein".

In claim 2, lines 3 and 5, the comma (,) should be replaced by a semicolon (;). In claim 2, line 6, the comma(,) should be replaced by "; and".

In claim 2, line 9, a comma (,) should be inserted after the phrase "to be heard through a stethoscope".

In claim 2, line 9, the word "where" should be changed to "wherein".

In claim 25, line 15, the word "where" should be changed to "wherein".

Appropriate correction is required.

Applicant thanks the Examiner for the kind suggestions. Applicant has amended the claims according and respectfully request withdrawal of these claim objections.

Claim Rejections - 35 USC § 102

2. **Claims 1, 8-10, and 14** stand rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Abrahamson et al. (3,520,071).

The Examiner contends as follows:

Referring to claim 1, Abrahamson discloses an apparatus for simulating a pulse and correlated heart beat of an animal, the apparatus comprising a playback device for generating a first electronic signal corresponding to a pulse (col. 3, line 73) and a second electronic signal corresponding to a correlated heart beat (col. 3, line 73), a tactile pulse simulator for receiving the pulse signal and. generating a pressure pulses simulating an arterial pulse discernible by touch (col. 8, lines 39-44, lines 48-52) and an audio simulator for receiving the correlated heart beat signal (col. 9, lines 40-45) and recreating the heart beat to be heard through a stethoscope (col. 4, lines 8-9). Note that, the applicant's disclosure suggested that these sounds could be computer generated, and preferably are reproduced using pre-recorded sounds from an actual person (Specification, page 66, lines 2-3). Abrahamson further teaches the electronic signals are computer generated (4:8-16; 9:38-57). Abrahamson does not explicitly teach the amended limitation of the first and second electronic signals are generated from recordings of living animals including humans, however, it is notoriously well known to alternatively utilize and playback authentic pre-recorded natural sounds, to enhance the reality of a sound generation system.

Regarding claim 8, Abrahamson discloses that the tactile pulse simulator comprises a collapsible tube apparatus (8:39-47).

Regarding claim 9, Abrahamson discloses that the tactile pulse simulator and the audio simulator are housed within a housing (6:10-11; 9:72-74).

Regarding claim 10, Abrahamson discloses that the tactile pulse simulator comprises a resilient cover covering a tactile switch capable of generating pulses simulating the arterial pulse (9:57-72).

Regarding claim 14, Abrahamson discloses that the tactile pulse simulator is within a first housing (193) and the audio simulator is within a second housing (190) (Figure 12).

Applicant continues to fundamentally disagree with the Examiner's reading of Abrahamson. Clearly, Abrahamson is related to simulation. Clearly, Abrahamson includes heart beat simulators. However, Abrahamson does not include pulse simulators as set forth in this invention. The only pulse generators used in Abrahamson that are touch discernible are the Carotid and temporal pulse simulators which consists of "sealed vinyl tubes 175." Abrahamson at Col. 8, ll 39-40. "The two systems (carotid and temporal) are manifold connected to permit each pulse system independent operation." Abrahamson at Col. 8, ll 40-42. Thus, the pulse generators of Abrahamson are pneumatic, a system prone to difficulties in control and reproducibility.

Moreover, Abrahamson does not disclose, teach or suggest the simultaneous monitoring of touch sensitive pulse simulators and a stethoscope. Abrahamson does teach simultaneous monitoring of two different sound, heart sounds and brachial artery sounds, but the brachial artery sounds are not touch discernible. The brachial artery sounds are used exclusively to simulate blood pressure measurements.

Furthermore, Abrahamson does not include correlated heart sounds and pulses that are based on recording of living animals. Abrahamson does not correlate the heart sounds and pulses as Abrahamson has provided that the pulses and heart beat to be non-correlated and independently controlled. Such independently controlled outputs are in no way correlated, as is clear from the following quotes:

> In addition, the dials for overriding certain conditions and either in-creasing or decreasing the readings of blood pressure, pulse rate, respiration rate and jaw tension are also listed on FIG. 2 and shown in their position on the instructor's console 200 in FIG. 3.

US3520071 at Col. 3, ll. 44-50.

> (J) Carotid and temporal pulsing is presented by means of flattened, sealed vinyl tubes 175. The two systems (carotid and temporal) are manifold connected to permit each pulse system independent operation. Rate and amplitude variations are effectively developed through use of an electro-pneumatic transducer which receives signals from the heart-sound generator of FIG. 10. The generation of that signal will be described in connection with further discussion of FIG. 10.

US3520071 at Col. 8, ll. 41-47.

> The means for generating the heart sound through the transducer **180** whose tubular outlet is located in the left chest area is shown in block diagram form in FIG. 10. The heart sound is simulated by properly modulating the amplitude of a fixed frequency oscillator **181.** The amplitude profile of the heart sound is obtained by adjusting the function generator 182. The output of the function generator 182 and the output of the oscillator 181 will be fed to the modulator **183.** The modulator 183 output will thus be of fixed amplitude and have the proper sound characteristics. Signal amplitude will be kept under computer **300** control by feeding the control signal from computer 300 and the modulator 183 signal to the electronic multiplier 184.
>
> The heart rate is computer controlled in the following way. The rate signal from computer **300** controls the frequency of a voltage controlled oscillator 185. The out-put of oscillator 185 drives a one-shot multivibrator 186, whose output is shaped to appropriately drive the function generator 182 by the ramp generator 187. Arrhythmias may be simulated by generating appropriate extra or missing heart beats in the arrhythmia generator **188,** which is turned on and off at the correct times by a control signal from computer **300.** The output of the one-shot multivibrator **186** is also used to drive the pulse mechanism in the manikin **100** to insure synchronism. In addition, it provides a synchronization signal to the sound generator for the sphygmomanometer.

US3520071 at Col. 9, ll. 4-32.

> The generator which is used in driving the brachial-artery sound source is selected by comparatives within the computer **300.** If the cuff pressure in pressure cuff 193 shown in the sphygmomanometer instrument arrangement on the manikin's right arm 102, as shown in FIG. 12, is above diastolic but below systolic, a

> comparator will select the spurting pulse generator 192. When the cuff pressure reaches or exceeds systolic, both sound generators 191 and 192 are disconnected.

US3520071 at Col. 9, ll. 46-54.

Although the sounds can be synchronized, the device was designed to insure separate functioning. Thus, it is obvious from the above quotes that the pulse and heart rates are not meant to simultaneously monitored nor are they meant to be simultaneously correlated and certainly not derived from recorded heart beat sound and pulses from living animal including humans.

The Abrahamson device is not capable simultaneously generating heart sounds and correlated right and/or left side touch discernible pulses for the training of medical practitioners in discriminating between normal cardiovascular function and abnormal cardiovascular function through hearing and touch only. The present invention is designed to permit a medical practitioner using a stethoscope and a finger to be trained to discriminate between normal cardiovascular function and abnormal cardiovascular function. Nothing in Abrahamson even suggests using only hearing and touch to train medical practitioners in discriminate between normal cardiovascular function and abnormal cardiovascular function.

Because Abrahamson does not disclose, teach or even suggestion the simultaneous monitoring of heart sounds and pulses (right and/or left) that are correlated from recording of living animals for training medical practitioners in discriminate between normal cardiovascular function and abnormal cardiovascular function, Abrahamson does not anticipate nor render obvious the claims of this invention. Applicant, therefore, respectfully requests withdrawal of this rejection.

Claim Rejections - 35 USC § 103

3. **Claims 2 and 16** stand rejected under 35 U.S.C. 103(a) as being unpatentable over Abrahamson in view of Takashina et al. (US Patent No. 6,461,165).

The Examiner contends as follows:

> Referring to claim 2, Abrahamson discloses an apparatus for simulating a right side pulse and correlated heart beat of an animal, the apparatus comprising a playback device for generating a first electronic signal corresponding to the right side pulse and a second electronic signal corresponding to a correlated heart beat (col. 3, line 73; col. 9, lines 57-72), a tactile pulse simulator for receiving the right pulse signal and generating a pressure pulses simulating a right side arterial pulse discernible by touch (col. 8, lines 39-44, lines 48-52), and an audio simulator for receiving the correlated heartbeat signal (col. 9, lines 40-45) and recreating the heartbeat to be heard through a stethoscope (col. 4, lines 8-9). Note that, the

applicant's disclosure suggested that these sounds could be computer generated, and preferably are reproduced using pre-recorded sounds from an actual person (Specification, page 66, lines 2-3). Abrahamson further teaches the electronic signals are computer generated (4:8-16; 9:38-57). Abrahamson does not explicitly teach the amended limitation of the first and second electronic signals are generated from recordings of living animals including humans, however, it is notoriously well known to alternatively utilize and playback authentic pre-recorded natural sounds, to enhance the reality of a sound generation system. Furthermore, Abrahamson does not disclose the simulation of a left side pulse along with an electronic signal corresponding to the left side pulse and a tactile pulse simulator for receiving the left pulse signal and generating a pressure pulses simulating a left side arterial pulse discernible by touch. However, Takashina teaches the placement of electric pulse generators (col. 1, lines 63-67) on both sides of the body, more specifically both arms (Figure 2, items 5, 6, 7, and 8). It would have been obvious to one of ordinary skill in the art at the time of invention to place the structure described by Abrahamson on both sides of a manikin as taught by Takashina to create a complete simulation, as opposed to a half-body simulation, of the human heart beat and pulse.

Regarding claim 16, Abrahamson discloses that the tactile pulse simulator comprises a collapsible tube apparatus (col. 8, lines 39-47).

The combination of Abrahamson and Takashina does not disclose, teach or suggest the the simultaneous monitoring of heart sounds and pulses (right and/or left) that are correlated from recording of living animals for training medical practitioners in discriminate between normal cardiovascular function and abnormal cardiovascular function. It is the use of recording from living animals (living humans) that permits the sound generator for the heart sounds and the tactile generators for touch to be correlated in such a way that the medical student is exposed to real normal and abnormal heart sound and arterial pulses. Thus, the combination of Abrahamson and Takashina does not render obvious the present claims. Applicant, therefore, respectfully requests withdrawal of this rejection.

4. **Claims 15** stands rejected under 35 U.S.C. 103(a) as being unpatentable over Abrahamson in view of Takashina, further in view of Elwell (US Patent No. 3,298,132).

The Examiner contends as follows:

Abrahamson discloses that the tactile pulse simulator comprises a resilient cover covering a tactile switch capable of generating pulses simulating the arterial pulse (9:57-72). Abrahamson does not expressly disclose that the first housing simulates a human wrist or that the tactile pulse simulator is located at a position in the wrist corresponding to a position in the patient where the arterial pulse is detected and monitored. However Takashina teaches that the pulse generators can be located at the brachial artery or radial artery positions (col. 4, lines 63-67). It would have been obvious to one of ordinary skill in the art at the time of invention

to place the pulse generator at the wrist in order to simulate the pulse at a position on the human body where it is commonly know that the pulse is easy to detect.

The combination of Abrahamson, Takashina and Elwell does not disclose, teach or suggest the the simultaneous monitoring of heart sounds and pulses (right and/or left) that are correlated from recording of living animals for training medical practitioners in discriminate between normal cardiovascular function and abnormal cardiovascular function. It is the use of recording from living animals (living humans) that permits the sound generator for the heart sounds and the tactile generators for touch to be correlated in such a way that the medical student is exposed to real normal and abnormal heart sound and arterial pulses. Thus, the combination of Abrahamson, Takashina and Elwell does not render obvious the present claims. Applicant, therefore, respectfully requests withdrawal of this rejection.

5. **Claims 25-27** stand rejected under 35 U.S.C. 103(a) as being unpatentable over Abrahamson in view of Takashina.

The Examiner contends as follows:

> Referring to claim 25, Abrahamson discloses an apparatus for simulating a pulse and correlated heart beat of a human, the apparatus comprising a playback device for generating an electronic signal corresponding to the right side pulse and a second electronic signal corresponding to a correlated heart beat (col. 3, line 73; col. 9, lines 57-72); a first housing including a first tactile pulse simulator for receiving the right side arterial pulse signal and generating a pressure pulses corresponding to a right arm arterial pulse discernible by touch (col. 8, lines 39-44, lines 48-52); and a second housing including an audio simulator for receiving the heart beat signal and generating an audible recreation of the correlated heartbeat (col. 9, lines 40-45) and designed to be heard through a stethoscope position on a surface of the housing (col. 4, lines 8-9). Note that, the applicant's disclosure suggested that these sounds could be computer generated, and preferably are reproduced using pre-recorded sounds from an actual person, (Specification, page 66, lines 2-3). Abrahamson further teaches the electronic signals are computer generated (4:8-16; 9:38-57). Abrahamson does not explicitly teach, the amended limitation of the first and second electronic signals are generated from recordings of living animals including humans, however, it is notoriously well known to alternatively utilize and playback authentic pre-recorded natural sounds, to enhance the reality of a sound generation system. Furthermore, Abrahamson does not disclose, a second electronic signal corresponding to the left side pulse and an additional housing including a second tactile pulse simulator for receiving the left side arterial pulse signal and generating a pressure pulses corresponding to a left arm arterial pulse discernible by touch. However, Takashina teaches the placement of electric pulse generators (col. 1, lines 63-67) on both sides of the body, more specifically both arms (Figure 2, items 5, 6, 7, and 8). It would have been obvious to one of ordinary skill in the art

at the time of invention to place the structure described by Abrahamson on both sides of a manikin as taught by Takashina to create a complete simulation, as opposed to a half-body simulation, of the human heart beat and pulse.
Regarding claim 26, Abrahamson, as modified by Takashina, discloses that the tactile pulse simulator comprises a collapsible tube apparatus (col. 8, lines 39-47).
Regarding claim 27, Abrahamson, as modified by Takashina, discloses that the tactile pulse simulators comprise a resilient cover covering the tactile switch capable of generating pulses simulating the arterial pulse (9:57-72).

The combinations of Abrahamson and Takashina and Abrahamson, Takashina Elwell do not disclose, teach or suggest the the simultaneous monitoring of heart sounds and pulses (right and/or left) that are correlated from recording of living animals for training medical practitioners in discriminate between normal cardiovascular function and abnormal cardiovascular function. It is the use of recording from living animals (living humans) that permits the sound generator for the heart sounds and the tactile generators for touch to be correlated in such a way that the medical student is exposed to real normal and abnormal heart sound and arterial pulses. Thus, the combinations of Abrahamson and Takashina and Abrahamson, Takashina Elwell do not render obvious the present claims. Applicant, therefore, respectfully requests withdrawal of this rejection.

Response to Arguments

9. Applicant's arguments have been fully considered but they are not persuasive.

The Examiner contends as follows:

Applicant's arguments filed November 15, 2006 have been fully considered but they are not persuasive.

Applicant argued that the references of Abrahamson, Takashina, and Elwell do not teach the amended limitation of the first and second electronic signals are generated from recordings of living animals including humans (Applicant's remarks, page 5, line 14, to page 10, last paragraph) is deemed not to be persuasive. In the specification, the applicant suggested that these sounds could be computer generated, and preferably are reproduced using pre-recorded sounds from an actual person (Specification, page 66, lines 2-3). Abrahamson further teaches the electronic signals are computer generated (4:8-16; 9:38-57). Regarding the amended limitation of the first and second electronic signals are generated from recordings of living animals including humans, it is notoriously well known to alternatively utilize and playback authentic pre-recorded natural sounds, to enhance the reality of a sound generation system.

Applicant do not believe that any of the references singly or collectively discloses, teaches or suggest the use of a heart sound electronic device and a pulse electronic device that is controlled by a playback unit that uses actually recording of living animals sounds and correlated pulses as the

source. Because none of these references singly or collectively disclose such an arrangement, the present claims are allowable over the rejections.

The Commissioner is authorized to charge any additional fees or credit any overpayments to Deposit Account No. 501518.

Respectfully Submitted,

Date: **October 18, 2007**

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